

# Laboratory Semantic Interoperability

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*Excellent Laboratories, Outstanding Health*

# Semantic Interoperability

Semantics concerns the study of meanings.

Semantic interoperability is the **ability of computer systems to exchange data with unambiguous, shared meaning.**

# Why is this Important?

- Access to laboratory test results across the continuum of care
- Improve Clinical Decision Support (CDS)
- Improve public health surveillance during emergencies / outbreak
- Provide Real World Evidence (RWE) for more efficient medical research
- Support quality assurance of laboratory testing

# September 2005 – Claire Broome

*“I hope that laboratory information management system (LIMS) vendors will integrate coding and message formatting tasks into newer systems, thereby reducing the burden of coding, formatting, and reporting. **Laboratories have the opportunity to be leaders in the national health data exchange using Logical Observation Identifier Names and Codes (LOINC), Systematized Nomenclature of Medicine (SNOMED), and Health Level Seven (HL7) coding and messaging standards for communicating laboratory results and other patient data.** A reliable coding of a complete set of laboratory results would expedite the flow of critical information among federal, state, local, and private sector laboratories during emergencies.”*

*Claire Broome, MD/ CDC  
September 7, 2005*

# 2005 – 2018 CLIAC Meetings

- Discussed interoperability 14 times – 41 presentations
- 7 recommendations
- Since 2009 laboratory informatics has been a regular topic
- Topics include interoperability, coding, patient safety, usability, and public health needs
- ONC provided 5 updates

# Systemic Harmonization and Interoperability Enhancement for Laboratory Data (SHIELD)

- Promotes semantic interoperability of laboratory data
- 50 Supporting partners
  - Government, laboratory, manufacturers, EHR vendors, professional organizations and standards development organizations
- Accomplishments
  - Digital format
  - LOINC to Vendor IVD Test Results (LIVD)



# Questions for CLIAC

- What challenges remain for achieving semantic interoperability?
- How can CMS, FDA, and CDC facilitate addressing those challenges?
- How can CMS, FDA and CDC support industry in their efforts to provide standard test codes for laboratories?
- What incentives would laboratories need to voluntarily implement the laboratory data exchange standards? (HL7, LOINC, SNOMED, UCUM, LIVD)

# Speakers

- **Stanley M. Huff, MD** -- Information Models to Standardize Access to Laboratory Data
- **Daniel J. Vreeman, PT, DPT, MS** -- Regenstrief Harmonization Efforts
- **Edwin O. Heierman, Ph.D.** -- IVD Instrument Standards for Interoperability and the Harmonization of Laboratory Data



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